

Recovery Plan Action Status

Plan Name: South Florida Multi-Species Recovery Plan (68 spp.)

Plan Status: Final

Plan Date: 18-May-99

Lead Agency: USFWS

Lead Office: South Florida Ecological Services Field Office

(772) 562-3909)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-h1.1.1	Continue Federal acquisition efforts for Lower Keys rabbit.	Ongoing Current	FY 1995 - FY 1999		To be determined	Acquisition: General	Internal Administrative	Cost dependent upon specific site and amount of land acquired. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-h1.1.2	Support State acquisition efforts.	Ongoing Current	FY 1995 - FY 1999		Florida Fish and Wildlife Conservation Commission	Acquisition: General	Labor type not yet selected	Cost dependent upon specific site and amount of land acquired. Action lead(s): FWC
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-h1.1.3	Support and encourage land acquisition by non-governmental agencies.	Ongoing Current	FY 1995 - FY 1999		Non-governmental organizations	Acquisition: General	Labor type not yet selected	Cost dependent upon specific site and amount of land acquired. Action lead(s): NGO
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-h1.2.1	Protect marsh rabbit on private lands through acquisition, landowner agreements, conservation easements.	Ongoing Current	FY 1995 - FY 1999		U.S. Federal Emergency Management Agency, Florida Department of Environmental Protection, Private industry, landowners, etc.	Acquisition: General	Labor type not yet selected	Cost dependent upon type of protection provided. Several land acquisition programs are underway. Action lead(s): FWS. Big Pine Key - No Name Key HCP released June 20, 2006.
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-h1.2.2	Protect marsh rabbit on public lands.	Ongoing Current	FY 1995 - FY 1999		U.S. Federal Emergency Management Agency, Florida Fish and Wildlife Conservation Commission, South Florida counties	Management: General	Labor type not yet selected	Cost dependent upon type of protection provided. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-h1.2.3	Coordinate with Federal, State and Monroe County agencies and private entities to develop management actions to protect marsh rabbit habitat.	Complete	FY 1995 - FY 1999	FY 2006	U.S. Federal Emergency Management Agency, Florida Fish and Wildlife Conservation Commission, South Florida counties, Naval Air Station Key West	Acquisition: General	Labor type not yet selected	Action lead(s): FWS. Big Pine Key - No Name Key HCP released June 20, 2006.

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Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-h1.2.4	Protect important corridors.	Ongoing Current	FY 1995 - FY 1999		Florida Fish and Wildlife Conservation Commission, South Florida counties, Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	Cost dependent upon type of protection provided. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-h1.2.5	Remove invasive exotic vegetation.	Ongoing Current	FY 1995 - FY 1999		Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	Cost is per acre (ex. 1.5/acre); Total cost dependent upon number of acres infested with exotics. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-h1.2.6	Prevent habitat areas from being mowed.	Ongoing Current	FY 1995 - FY 1999		South Florida counties, Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-h1.2.7	Fence or barricade areas where off-road vehicle (ORV) use and/or dumping is a threat.	Ongoing Current	FY 1995 - FY 1999		Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-h1.2.8	Continue cooperative management at NASKW, Key West. NASKW has minimized their impacts on the Lower Keys marsh rabbit through management actions.	Ongoing Current	FY 1995 - FY 1999		Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	Cost dependent upon type of management implemented. Action lead(s): NASKW
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-h2.1	Restore natural tidal flow and hydrology by placing culverts or removing fill.	Ongoing Current	FY 1995 - FY 1999		U.S. Army Corps of Engineers, Florida Department of Transportation, Non-governmental organizations	Work type not yet selected	Labor type not yet selected	Too many variables to accurately determine cost. Action lead(s):
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-h2.2	Manage mosquito ditches so they do not impact rabbit habitat.	Not Started			Florida Department of Environmental Protection, South Florida counties, Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	Task currently implemented on public lands and cost is included in responsible agency's budget. Action lead(s): FWS. The "science" regarding how to do this not yet clear.

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Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-h2.3	Improve water quality in freshwater sources and create additional freshwater sources.	Obsolete			U.S. Army Corps of Engineers, Water Management Districts	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-h2.4	Enhance Lower Keys marsh rabbit habitat.	Ongoing Current	FY 2006		Naval Air Station Key West	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	Cost is per acre (ex. 0.5/acre); Total cost dependent upon number of acres enhanced. Action lead(s): FWS. Initiated with buttonwood clearing test on n. Big Pine Key; then applied fire test on NAS Key West.
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-h2.5	Improve habitat by planting or encouraging native plant species.	Not Started			Naval Air Station Key West	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	Cost is per acre (ex. 0.5/acre); Total cost dependent upon number of acres improved. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-h2.6	Create habitat by filling and restoring areas that have been dredged or altered.	Ongoing Current	FY 1995 - FY 1999		Naval Air Station Key West	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	Cost is per acre (ex. 1.0/acre); Total cost dependent upon number of acres created for habitat. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-h3.1.1	Conduct radio-telemetry on other subpopulations.	Ongoing Current	FY 2007		Naval Air Station Key West, Public and private universities	Research: General	Labor type not yet selected	Daytime telemetry conducted by Forys (1995) and Faulhaber (2003). In 2004-2005, TAMU, NASKW, and FWS cooperated to conduct additional telemetry and habitat studies that include nighttime telemetry (Perry 2005). Action lead(s): universities
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-h3.1.2	Investigate the effect of habitat change.	Not Started	FY 2007		Naval Air Station Key West, Public and private universities	Research: Habitat Requirements	Labor type not yet selected	Action lead(s): universities

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Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	lkra-h3.2.1	Investigate movement patterns and the spatial use of habitat to identify important core areas and corridors.	Partially Complete	FY 1995 - FY 1999		Naval Air Station Key West, Public and private universities	Work type not yet selected	Labor type not yet selected	Task largely completed by Forsys (1995), then updated starting 2001 by TAMU. Action lead(s): universities
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	lkra-h3.2.2	Determine home range and minimum area required.	Complete	FY 1995 - FY 1999	FY 2006	Florida Fish and Wildlife Conservation Commission, Naval Air Station Key West, Public and private universities	Research: General	Labor type not yet selected	Daytime telemetry conducted by Forsys (1995) and Faulhaber (2003). In 2004-2005, TAMU, NASKW, and FWS cooperated to conduct additional telemetry and habitat studies that include nighttime telemetry (Perry 2005). Action lead(s): universities
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	lkra-h3.2.3	Determine if the amount and configuration of habitat is sufficient to support a stable or increasing population of Lower Keys marsh rabbits.	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	Naval Air Station Key West, Public and private universities	Work type not yet selected	Labor type not yet selected	See Forsys (1995). Information gained from the updated distribution survey (Faulhaber 2003) should be incorporated into the population viability analysis model developed by Forsys and Humphrey (1999). Action lead(s): universities
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	lkra-h4.0	Monitor the status of marsh rabbit habitat and examine ecological processes.	Ongoing Current	FY 2007		Public and private universities	Research: General	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	lkra-h5.0	Increase public awareness of Lower Keys marsh rabbit habitat and instill stewardship.	Not Started			Non-governmental organizations	Work type not yet selected	Labor type not yet selected	NKDR visitor center provides information. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	lkra-s1.1	Conduct additional surveys to refine marsh rabbit distribution.	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	Public and private universities	Work type not yet selected	Labor type not yet selected	See Faulhaber (2003). Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	lkra-s1.2	Conduct presence/absence surveys in areas of unoccupied habitat.	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	Public and private universities	Work type not yet selected	Labor type not yet selected	See Faulhaber (2003). Action lead(s): FWS

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Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-s1.3	Investigate components of both occupied and unoccupied marsh rabbit habitat and determine why rabbits are present or absent.	Not Started			Naval Air Station Key West, Public and private universities	Work type not yet selected	Labor type not yet selected	Partly completed by Forys (1995) and Faulhaber (2003). TAMU and NASKW initiated a quantitative habitat study in 2004 (Perry 2005). Action lead(s): universities
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s1.4	Maintain and improve the GIS database for marsh rabbit information.	Ongoing Current	FY 2007		Florida Fish and Wildlife Conservation Commission, Public and private universities	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s2.1	Assign a biologist responsibility for implementing recovery actions for the threatened or endangered species of the Lower Keys.	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	To be determined	Work type not yet selected	Labor type not yet selected	FWS biologist assigned to South Florida Ecological Services Office and stationed at Big Pine Key. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s2.2.1	Develop a standard protocol for conducting, monitoring, and evaluating all reintroduction, translocation and supplementation efforts of Lower Keys marsh rabbits using the IUCN/SSC Guidelines for Reintroductions.	Partially Complete	FY 2000 - FY 2004		Naval Air Station Key West, Public and private universities	Work type not yet selected	Labor type not yet selected	Incorporating data from Faulhaber (2003), TAMU initiated a project in 2003 to accomplish this task (Perry 2005). Action lead(s): FWS

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Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s2.2.2	Reintroduce marsh rabbits on Water Key.	Complete	FY 2000 - FY 2004	FY 2007	Public and private universities	Management: Reintroduction	Labor type not yet selected	Seven rabbits were translocated to Water Key in May-July 2004, by Neil Perry of TAMU. Additionally, 11 rabbits were translocated to Little Pine Key in January-April 2002 (Faulhaber 2003). Monitoring indicates that the projects continue to be successful as of September 2005, including evidence of reproduction on both keys. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s2.2.3	Conduct reintroduction of marsh rabbits to other areas.	Partially Complete	FY 2000 - FY 2004		Naval Air Station Key West, Public and private universities	Management: Reintroduction	Labor type not yet selected	Seven rabbits were translocated to Water Key in May-July 2004, by Neil Perry of TAMU. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s2.3	Utilize Federal regulatory mechanisms for protection.	Ongoing Current	FY 1995 - FY 1999		U.S. Bureau of Land Management, U.S. Department of Agriculture, U.S. Geological Survey, Biological Resources Division, U.S. Geological Survey, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Natural Resources Conservation Service, United States Coast Guard, U.S. Air Force	Work type not yet selected	Labor type not yet selected	Cost included in standard operating procedures of Federal agency's budget. Action lead(s): All Federal agencies
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s2.4	Provide information about marsh rabbits to Federal, state, county and city agencies.	Ongoing Current	FY 1995 - FY 1999		Florida Fish and Wildlife Conservation Commission, Non-governmental organizations	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS

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Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-s2.5.1.1	Continue coordination efforts with NASKW to eliminate free roaming cats from that Federal facility.	Ongoing Current	FY 2006		Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	No systematic effort to control feral and free-range domestic cats is presently in place. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s2.5.1.2	Reduce impacts by free roaming cats. Develop deed restrictions to prohibit free roaming cats in rabbit sensitive areas.	Ongoing Current	FY 2007		South Florida counties, Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	No systematic effort to control feral and free-range domestic cats is presently in place. Action lead(s): counties
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s2.5.2	Control raccoon predation. Raccoon populations are unnaturally high in some areas of the Lower Keys.	Ongoing Current	FY 2006		South Florida counties, Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	No systematic effort to control raccoons is presently in place. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s2.5.3.1	Install chatter strips at known rabbit crossing areas on NASKW and Monroe County roads, where feasible.	Ongoing Current	FY 1995 - FY 1999		South Florida counties, Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s2.5.3.2	Implement slower speed zones and increase enforcement of existing zones to decrease rabbit roadkills.	Ongoing Current	FY 1995 - FY 1999		South Florida counties, Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	After task is implemented, cost of enforcing speed zones will be included in responsible agency's budget. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s2.5.4	Control poaching.	Obsolete			Florida Fish and Wildlife Conservation Commission	Work type not yet selected	Labor type not yet selected	Although not a documented problem, task is currently conducted and cost is included in responsible agency's budget. Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s2.6	Establish captive propagation protocols and plans.	Not Started			Public and private universities	Work type not yet selected	Labor type not yet selected	An in situ rather than an ex situ captive breeding program has been suggested (see Faulhaber 2003). Action lead(s): FWS

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Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-s3.1	Determine if the total population size is large enough to prevent functional extinction and genetic extinction.	Not Started			Florida Fish and Wildlife Conservation Commission, Public and private universities	Work type not yet selected	Labor type not yet selected	Action lead(s): universities
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s3.2	Examine effects on the persistence of the Lower Keys marsh rabbit.	Ongoing Current	FY 2006		Naval Air Station Key West, Public and private universities	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s3.3	Determine the effective population size.	Not Started			Public and private universities	Work type not yet selected	Labor type not yet selected	Action lead(s): universities
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-s3.4.1	Identify subpopulations vulnerable to extinction.	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	Naval Air Station Key West, Public and private universities	Work type not yet selected	Labor type not yet selected	See Forsy (1995), Forsy et al. (1996), and Faulhaber (2003). Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	2	Ikra-s3.4.2	Determine the necessary number of subpopulations and level of exchange that will enable the rabbit to persist for 100 years.	Not Started			Public and private universities	Work type not yet selected	Labor type not yet selected	Action lead(s): universities
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s3.5	Conduct an experimental marsh rabbit reintroduction and evaluate its effectiveness in increasing the rabbits' persistence.	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	Public and private universities	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s4.1	Conduct long-term monitoring.	Ongoing Current	FY 2000 - FY 2004		Public and private universities	Work type not yet selected	Labor type not yet selected	See Faulhaber (2003) and Perry (2005). Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	Ikra-s4.2	Develop methods to monitor demographic parameters.	Not Started			Public and private universities	Work type not yet selected	Labor type not yet selected	Action lead(s): FWS
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	Ikra-s5.1	Prepare informational material for the general public.	Not Started			Non-governmental organizations	Work type not yet selected	Labor type not yet selected	NKDR visitor center provides information. Action lead(s): FWS

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Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	1	lkra-s5.2	Develop and implement a free-roaming cat control program.	Ongoing Current	FY 2007		South Florida counties, Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	No systematic effort to control feral and free-range domestic cats is presently in place. Action lead(s): counties
Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>)	3	lkra-s5.3	Continue to inform military and civilian personnel at NASKW. Inform personnel about the marsh rabbit's presence, its protection under the ESA, and ways to minimize impacts on it.	Ongoing Current	FY 1995 - FY 1999		Naval Air Station Key West	Work type not yet selected	Labor type not yet selected	NASKW has natural resource personnel assigned to this task. Action lead(s): NASKW